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INTEGRAL and Swift detection of high energy emission from Swift J1749.4-2807

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Distributed as an Instant Email Notice Request For Observations

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During the observations of the Galactic bulge, performed from 2010-04-10 22:00:00 to 2010-04-11 01:41:36 (UTC), INTEGRAL detected high energy emission from a position coincident with the burst-only source Swift J1749.4-2807 (GRB060602B).

The source is detected at 8 sigma in the IBIS/ISGRI mosaic in the energy band 20-40 keV. We used all data of this observation to extract the ISGRI spectrum. The spectrum could be equally well fitted by using a power law (photon index 2.5 ± 0.9) or a blackbody model with $kT = 7.9 (+2.6, -1.9)$ keV. The estimated flux in the 20-40 keV energy band was of 1.3×10^{-10} erg/cm²/s (corresponding to 17 mCrab, effective exposure time 8.4 ks).

The ISGRI lightcurve did not show any clear evidence for a short burst with a fast rise and decay time, similar to that observed previously from this source (Wijnands et al. 2009, MNRAS, 393, 126; Campana, 2009, ApJ 699 1144).

The source was also detected by both JEMX1 and JEMX2 at a significance of 4.5 and 3.3 sigma in the energy bands 3-10 keV and 10-25 keV, respectively (effective exposure time 6.5 ks). Given the low significance of the detection, we roughly estimated a source X-ray flux of ~ 10 -20 mCrab.

Previous observations of the region of Swift J1749.4-2807 were performed by INTEGRAL from 2010-04-07 13:31:59 to 2010-04-07 17:13:34 for an exposure time of 15 ks (IBIS) and 9 ks (JEM-X). On that occasion the source was not detected. We estimated a 5 sigma upper limit on the source X-ray flux of 10(17) mCrab in the 20-40(40-100) keV energy bands and 5(2) mCrab in the 3-10(11-25) keV energy bands.

The source activity has been confirmed using a Swift ToO observation performed from 2010-04-11 23:41:10 to 2010-04-12 04:48:48 (UTC). The Swift lightcurve does not present any evidence for a fast rise and decay. After clearing of the data for pile-up, the spectrum is well fitted by a powerlaw model with photon index 2.6 ± 0.2 and $NH = 3.4 \pm 0.4 \times 10^{22} \text{ cm}^{-2}$. The inferred model flux in the 0.5-10 keV band, not corrected for absorption, is $3.0 \times 10^{-10} \text{ erg/cm}^2/\text{s}$. These values are in agreement with those reported in Campana, 2009, soon after the burst (powerlaw index 2.7, $NH = 4.0 \times 10^{22} \text{ cm}^{-2}$).

Further INTEGRAL observations of the Galactic bulge will be performed from 2010-04-13 15:00:00 to 2010-04-13 18:41:45 (UTC).

We are grateful to the Swift PI, Neil Gehrels, and the Swift mission operations team for their prompt scheduling of the Swift observations.